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Association between Alzheimer's disease and Rural Northeast Tennessee Region between 2013 and 2015

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Association between Alzheimer's disease and Rural Northeast Tennessee Region between 2013 and 2015

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Background


Source: https://www.cdc.gov/mmwr/volumes/66/wr/mm6620a1.htm#contribAff

Average annual age-adjusted death rates from Alzheimer’s disease per 100,000 populations, by county — United States, 2005–2014

Background (contd.)

Age-Adjusted Mortality Rate by Gender and Race in Northeast Tennessee. The data for other races are suppressed by the CDC chart generator.

Source: Centers for Disease Control and Prevention, National Center for Health Statistics. Underlying Cause of Death 1999-2015 on CDC WONDER Online Database, released December, 2016

Purpose

• We examined the association between Alzheimer’s Disease (AD) and the Northeast Tennessee counties compared to other counties in Tennessee using Prevalence Odds Ratio (POR).

  – The POR gives an unbiased estimate of the incidence rate ratio (Pearce, 2004).
Methodology

- Cross-sectional study & Data source triangulation
- Compares POR of rural versus urban counties
  - Rural vs. Urban counties in Northeast Tennessee
  - Northeast Tennessee region vs. other counties in Tennessee.
  - RUCC code 1-5 (Urban > 20,000 population); 6-9 (Rural < 20000 population)

- Sample
  - Quantitative survey of experts’ observations about AD within the Northeast Tennessee region.
# Results & Discussion

Table 1: Prevalence Odds Ratio **Rural vs. Urban counties** in **Northeast Tennessee region** from 2013-2015

<table>
<thead>
<tr>
<th>Year</th>
<th>POR</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Lower</td>
</tr>
<tr>
<td>2013</td>
<td><strong>1.183</strong></td>
<td>1.113</td>
</tr>
<tr>
<td>2014</td>
<td><strong>1.047</strong></td>
<td>0.982</td>
</tr>
<tr>
<td>2015</td>
<td><strong>1.190</strong></td>
<td>1.121</td>
</tr>
</tbody>
</table>

# Results & Discussion

Table 2: Prevalence Odds Ratio *Northeast region counties vs. other counties in Tennessee* from 2013-2015

<table>
<thead>
<tr>
<th>Year</th>
<th>POR</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Lower</td>
</tr>
<tr>
<td>2013</td>
<td>1.227</td>
<td>1.203</td>
</tr>
<tr>
<td>2014</td>
<td>1.225</td>
<td>1.202</td>
</tr>
<tr>
<td>2015</td>
<td>1.212</td>
<td>1.189</td>
</tr>
</tbody>
</table>
Results & Discussion

Survey: Expert and Professionals observations

Survey: formal training in Alzheimer’s disease research/practice?

<table>
<thead>
<tr>
<th>ANSWER CHOICES</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>51.28%</td>
</tr>
<tr>
<td>No</td>
<td>48.72%</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
</tr>
</tbody>
</table>
Survey: How often do you work with AD individuals or family members of individuals with Alzheimer’s disease?
Survey: Compared to five years ago, I currently work with more individuals with AD or family members of individuals with AD.
Survey: Compared to five years ago, the Northeast Tennessee region has a higher number of late stage diagnosis of AD compared to early stage diagnosis.
Survey: Early screening or diagnosis could prolong the lives of people living with Alzheimer’s disease.

Survey: I regularly hear about screening for Alzheimer’s disease in my community.
Survey: I know someone or families who have talked about the positive impact of early intervention for a family member living with Alzheimer’s disease.
Survey: Select the **top three (3) barriers to early diagnosis of Alzheimer’s disease in our region.**

**Answer Choices**

- Lack of patient awareness: 66.67% (26)
- Lack of community resources: 35.90% (14)
- Inefficient screening methods: 48.72% (19)
- Stigma: 15.38% (6)
- Denial: 71.79% (28)
- Reluctance to communicate with healthcare professionals: 46.15% (18)
- Other (please specify): 12.82% (5)

Total Respondents: 39
Limitations

• The prevalence is based on Medicare beneficiaries only.

• Some individuals with incidence of AD may not be eligible for Medicare.

• Prevalence based on the sensitivity of the diagnostic instrument (Bradford et al. 2009).

• Self-reported survey instrument.
Conclusion

- **Rural Northeast Tennessee counties** and the **Northeast Tennessee region** are at increased odds of the prevalence of AD.

- **Experts and professionals' observations** corroborate our findings that there are more cases of AD in the region compared to the last five years.
Acknowledgements

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• Dr. Weierbach Florence, PhD, MSN, MPH, RN
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• ETSU IRB, https://www.etsu.edu/irb/
References


